IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A spread-spectrum receiver comprising:

a high-rate signal-processing path to despread spread-spectrum signals of ~~receive~~ multi-rate channels with a plurality of despreading factors; and

a low-rate signal-processing path to despread spread-spectrum signals of ~~receive~~ fixed-rate channels with a predetermined despreading factor,

wherein the high-rate signal-processing path and the low-rate signal-processing path comprise parallel signal-processing paths to concurrently despread the multi-rate and fixed-rate channels and generate, respectively, a first and second data outputs.

2. (Currently Amended) The receiver of claim 1 wherein the receiver is a wideband code division multiple access (WCDMA) receiver and the high-rate signal-processing path despreads spread-spectrum multi-rate physical channels having a variable spreading factor and the low-rate signal-processing path despreads fixed-rate spread-spectrum physical channels having a fixed spreading factor.

3. (Currently Amended) The receiver of claim [[1]] 2 wherein the high-rate signal-processing path comprises at least one high-rate rake finger to despread spread-spectrum signals comprising the multi-rate channels, each multi-rate channel having a different spreading code allowing for ~~the~~ substantially simultaneous despreading of more than one of ~~reception of~~ several multi-rate channels.

4. (Currently Amended) The receiver of claim 3 wherein [[the]] at least one high-rate rake finger comprises:

a set of correlators, each correlator to despread one multi-rate channel of the several received multi-rate channels with an associated ~~a corresponding~~ spreading code;

a framer to separate control symbols and data symbols for each of the despread multi-rate channels; and

a buffer for each multi-rate channel to store the control and data symbols for the corresponding multi-rate channel.

5. (Currently Amended) The receiver of claim 4 wherein [[the]] at least one high-rate rake finger further comprises a code generator to generate the associated ~~corresponding~~ spreading codes for despreading each of the several multi-rate channels.

6. (Currently Amended) The receiver of claim 5 wherein [[the]] at least one high-rate rake finger further comprises:

a pilot channel correlator to despread a pilot channel having a predetermined spreading factor; and

a pilot channel buffer to store symbols from the despread pilot channel received from the pilot channel correlator,

[[and]] wherein the code generator also generates a spreading code for despreading by the pilot channel correlator.

7. (Original) The receiver of claim 1 wherein the multi-rate channels have a spreading factor ranging approximately from 4 to 256, and the fixed-rate channels has a spreading factor of approximately 256.

8. (Currently Amended) The receiver of claim [[7]] 1 wherein the high-rate signal-processing path further comprises a first rake and wherein the low-rate signal-processing path comprises second rate, the first and second rates to generate, respectively, first and second data outputs. ~~the multi-rate channels have a bit-rate ranging approximately from 30 - 960 kbps, and the fixed-rate channels have a bit-rate of approximately 30 kbps~~.

9. (Currently Amended) The receiver of claim 3 wherein the high-rate signal-processing path further comprises a high-rate rake to read symbols from [[the]] at least one high-rate rake finger and to multiply the symbols by a channel estimation, and

wherein the low-rate signal-processing path comprises a low-rate rake to read symbols from a low-rate rake finger and to multiply the symbols by a channel estimation.

10. (Original) The receiver of claim 9 wherein the high-rate rake is comprised of at least one finger engine to multiply the symbols with the channel estimation, and a combiner to combine multipath components of the multi-rate channels.

11. (Currently Amended) The receiver of claim 9 wherein [[the]] at least one high-rate rake finger is one of a plurality of high-rate rake fingers, each high-rate rake finger to despread a multipath component of each multi-rate channel, and

wherein [[the]] at least one finger engine is one of a plurality of finger engines, each finger engine to multiply the channel estimation with the symbols from a corresponding high-rate rake finger for each of the several multi-rate channels, and

wherein the combiner coherently combines symbols from the multipath components from the finger engines for the several multi-rate channels.

12. (Currently Amended) The receiver of claim 9 wherein [[the]] at least one high-rate rake finger and the high-rate rake are implemented with hardware elements, and wherein the low-rate signal-processing path comprises:

at least one low-rate finger to despread a multipath component of spread-spectrum signals comprising the fixed-rate channels; and

a digital signal processor (DSP) to generate a channel estimation and to coherently combine symbols from [[the]] at least one low-rate finger with the channel estimation.

13. (Currently Amended) The receiver of claim 12 wherein the DSP assigns [[the]] at least one high-rate finger a multi-path component of the several multi-rate channels and [[the]] at least one low-rate finger a multi-path component of the fixed-rate channels.

14. (Currently Amended) The receiver of claim 13 wherein [[the]] at least one high-rate rake finger is one of a plurality of high-rate rake fingers, each high-rate rake finger to despread a multipath component of each multi-rate channel, and wherein the DSP performs frequency and time tracking to synchronize the high-rate fingers.

15. (Currently Amended) The receiver of claim [[14]] 2 further comprising an interpolator to receive baseband samples from an analog front end and raise a sampling rate of the baseband samples to provide the baseband samples with an increased sampling rate in parallel to both the high-rate signal-processing path and the low-rate signal-processing path for use by [[the]] rake fingers.

16. (Currently Amended) The receiver of claim 2 wherein the high-rate and low-rate signal-processing paths are part of a low-level portion of the receiver which despreads and decodes the physical channels, and

wherein the receiver further comprises a high-level portion to map the physical channels to transport channels.

17. (Currently Amended) A method for receiving spread-spectrum signals comprising:

despreading multi-rate channels in a high-rate signal-processing path with a plurality of despreading factors; and

despreading fixed-rate channels in a low-rate signal-processing path with a predetermined despreading factor,

wherein the high-rate signal-processing path and the low-rate signal-processing path comprise parallel signal-processing paths to concurrently despread the multi-rate and fixed-rate channels.

18. (Original) The method of claim 17 wherein at least one high-rate rake finger despreads spread-spectrum signals comprising the multi-rate channels, wherein each multi-rate

channel has a different spreading code allowing for the substantially simultaneous reception of several multi-rate channels.

19. (Original) The method of claim 18 wherein the despreading the multi-rate channels comprises:

despreading one multi-rate channel of the several received multi-rate channels with a corresponding spreading code;

separating control symbols and data symbols for each of the despread multi-rate channels; and

buffering the control and data symbols for each multi-rate channel.

20. (Currently amended) The method of claim 19 further comprising:

generating the corresponding spreading codes for simultaneously despreading each of the several multi-rate channels; [[and]]

multiplying the data symbols with the channel estimation for each of a plurality of multipath components; and

combining multipath components of the multi-rate channels.

21. (Original) The method of claim 17 wherein the multi-rate channels have a spreading factor ranging approximately from 4 to 256, and the fixed-rate channels has a spreading factor of approximately 256.

22. (Currently Amended) The method of claim 20 wherein despreading the multi-rate channels is performed by at least one high-rate rake finger implemented with hardware elements, and wherein despreading the fixed-rate channels is performed with at least one low-rate finger to despread a multipath component of spread-spectrum signals comprising the fixed-rate channels, and wherein a digital signal processor (DSP) generates a channel estimation and coherently combines symbols from [[the]] at least one low-rate finger with the channel estimation.

23. (Currently Amended) The method of claim 22 further comprising assigning, by the DSP, [[the]] at least one high-rate finger a multi-path component of the several multi-rate channels, and [[the]] at least one low-rate finger a multi-path component of the fixed-rate channels.

24. (Currently Amended) A wideband code division multiple access (WCDMA) receiver to despread multi-rate spread-spectrum physical channels having a variable spreading factor with a plurality of despreading factors and to despread fixed-rate spread-spectrum physical channels having a fixed spreading factor with a predetermined spreading code, the receiver comprising a high-rate signal-processing path to receive the multi-rate channels and a low-rate signal-processing path to receive the fixed-rate channels, wherein the high-rate signal-processing path and the low-rate signal-processing path comprise parallel signal-processing paths configured to concurrently despread the multi-rate and fixed-rate channels respectively, the high-rate signal-processing path comprises:

a plurality of high-rate rake fingers to despread a multi-path component of each multi-rate channel; and

a high-rate rake to read symbols from the high-rate rake fingers, to multiply the symbols by a channel estimation, and combine the multi-path components from each rake finger,

and the low-rate signal-processing path comprises:

at least one low-rate finger to despread a multipath component of spread-spectrum signals comprising the fixed-rate channels; and

a digital signal processor (DSP) to generate a channel estimation and to coherently combine symbols from [[the]] at least one low-rate finger with the channel estimation.

25. (Original) The receiver of claim 24 wherein the high-rate rake fingers comprise:

a set of correlators, each correlator to despread one multi-rate channel of the several received multi-rate channels with a corresponding spreading code;

a framer to separate control symbols and data symbols for each of the despread multi-rate channels;

a buffer for each multi-rate channel to store the control and data symbols for the corresponding multi-rate channel; and

a code generator to generate the corresponding spreading codes for despreading each of the several multi-rate channels.

26. (Original) The receiver of claim 25 wherein each multi-rate channel has a different spreading code allowing for the substantially simultaneous reception of several multi-rate channels, and wherein the multi-rate channels have a spreading factor ranging approximately from 4 to 256, and the fixed-rate channels has a spreading factor of approximately 256.